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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/277,013	03/25/1999	JERALD L. BAUCK	4025/77581	2936

7590 03/25/2004

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EXAMINER

LEE, PING

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/277,013

Applicant(s)

BAUCK, JERALD L.

Examiner

Ping Lee

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 1-20 been renumbered as claims 11-30 respectively.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear which claim is the parent of claim 16. For examination purpose, it is assumed that claim 16 depends on claim 14.

Regarding claim 17, "the speakers" on line 16 and "the plurality of speakers" at the end of the claim lack clear antecedent basis.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al (US 5,333,200).

Cooper et al (hereafter Cooper) discloses, Fig. 10b in view of Figs. 10A, a8b and 1c, the method of substantially recreating a binaural impression of a sound perceived by a first listener from an audio source for a plurality of other listeners comprising the steps of determining a first transfer function matrix (Fig. 8b); determining a second transfer function matrix (Fig. 1c); solving for a transfer function matrix (Fig. 10b); processing an input audio signal (as shown input at the top of the circuit) and supplying the processed audio signal to a set of speakers (col. 18, line 55).

Regarding claims 11-13, Cooper fails to explicitly show the plurality of other listeners at locations different from the location of the first listener. Cooper teaches a method for recreating the binaural impression for a single listener in a location that is different from the location of the first listener. Based Cooper's disclosure, the transfer functions A and S are functions depending on the location, which could be varied, of the single listener. The transfer functions A and S are functions for the particular single listener in the particular location. For additional listener(s), one skilled in the art would have expected that a different set of transfer functions A and S should be used

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depending on the location(s) of the additional listener(s). Thus, it would have been obvious to one of ordinary skill in the art to modify Cooper's method by implementing this method for more than one other listener at locations different from the first listener's in order to allow more than one listener to recreate the same binaural impression for the first listener.

Regarding claims 14-18, Cooper shows the stereo input (Fig. 10A), the plurality of speakers at $\pm 30^\circ$, the cross talk cancellation (col. 8, lines 15-49).

Regarding claim 19, Cooper shows that head simulation is for convert signals intended for a specific loudspeaker bearing angle, say $\pm 30^\circ$, therefore, the claimed limitation "conceptual or simulated space" is met.

Regarding claims 20 and 21, Cooper shows the method of recreating an acoustic perception of a listener in a first space (space with loudspeakers at $\pm 30^\circ$) for a listener in a second space (space with loudspeakers at $\pm 15^\circ$) in Fig. 15. Although Fig. 15 fails to explicitly show the signals to be applied to each speaker, in view of the disclosure of col. 18-19 in combination Fig. 15, in view of Figs. 10a, 10b, 8b and 1c, one skilled in the art would be able to determining a second matrix of transfer functions (Fig. 8b); determining a first matrix of transfer functions (col. 18, line 65); determining a fourth matrix of transfer function (Figs. 10a and 10b) using the first, second and third matrices; processing an input audio signal and supplying the processed audio signal to a set of speakers (col. 18, line 55), in order to reformat the input signals (L_s, R_s ; col. 18, lines 60-63) to recreate sources at a location (the example provided by Cooper is $\pm 50^\circ$) other than the location of the speakers for the first listener.

Regarding claim 22, Cooper shows the product of two matrices (comparing Fig. 10b with Fig. 10a).

Regarding claim 23, Cooper shows the sum or difference of two matrices (col. 19, lines 3-5)

Regarding claim 24, Cooper shows the realizable and stable filter elements (Figs. 6 and 7).

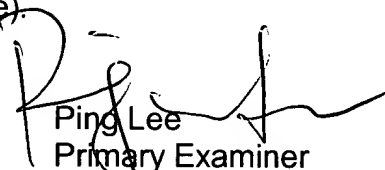
Regarding claims 25 and 27-30, Cooper further shows that method of recreating one or more acoustic perception of a single listener in a first space for more than one listener in a second space (Fig. 18), but fails to show there is more than one listener in a second space. Based on Cooper's teaching, one skilled in the art would determine the set of second matrix of transfer functions for each listener in the first space when more than one listeners are located in the first space. Thus, it would have been obvious to one of ordinary skill in the art to modify Cooper's method by determine the second matrix of transfer functions for each listener among plurality of listeners in the first space in order to recreate one or more perceptions of plurality of listeners in the first space for the listeners in the second space.

Regarding claim 26, Cooper shows the first space and second space are anechoic space.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 703-305-4865. The examiner can normally be reached on Monday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ping Lee
Primary Examiner
Art Unit 2644

pwl